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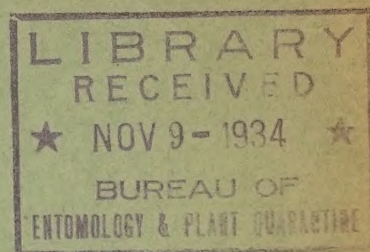
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UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF CHEMISTRY AND SOILS  
INSECTICIDE DIVISION

Patent List No. 21



A LIST OF  
UNITED STATES PATENTS  
Issued from 1917 to 1933 inclusive  
relating to  
APPARATUS FOR APPLYING INSECTICIDAL DUSTS  
Compiled by  
R. C. Roark

Washington, D. C.  
August, 1934







A LIST OF UNITED STATES PATENTS ISSUED FROM 1917 TO 1933, INCLUSIVE,  
RELATING TO APPARATUS FOR APPLYING INSECTICIDAL DUSTS

Compiled by

R. C. Roark

Insecticide Division, Bureau of Chemistry and Soils

These 156 patents describe machines for distributing powdered insecticides on plants and trees. Certain machines are designed to spray either powder or liquid, and 3 devices are for blowing dusts upon poultry. Insecticides mentioned in these patents include sulphur, lead arsenate, calcium arsenate, Paris green, hydrated lime, Bordeaux mixture, nicotine dust and calcium cyanide.

Every effort has been made by the compiler to make this list of patents complete and no discrimination is intended against any patent mention of which is inadvertently omitted.

The Department of Agriculture assumes no responsibility for the merits or workableness of any of the patents, nor does it recommend any of the inventions listed.

1,218,953 (Mar. 13, 1917; appl. Nov. 23, 1915). SPRAYING AND POWDER-DUSTING ATTACHMENT. Frank Oldham, Dallas, Tex. - This attachment to a cultivator sprays water on plants and then blows a powdered insecticide on them by means of a fan.

1,219,842 (Mar. 20, 1917; appl. July 17, 1916). APPARATUS FOR DUSTING POULTRY WITH INSECTICIDE. William P. Morgan, Grosse Ile, Mich. - A fowl on entering this box-like device steps on a hinged platform which when depressed causes insecticide to be dusted on the fowl.

1,226,443 (May 15, 1917; appl. Nov. 23, 1916). DRY-SPRAY GUN. Andrew J. Baker, Fort Wayne, Ind. - This bell mouth gun is carried on a vertical pole. Insecticidal powder is blown over the leaves of trees by setting off an explosive charge.

1,229,994 (June 12, 1917; appl. Aug. 24, 1916). POISON-DISTRIBUTER. Allen McWhorter, Riverton, N. J. - The hopper of this powder insecticide distributor is provided with a wiper or stirrer to prevent clogging.

1,237,123 (Aug. 14, 1917; appl. Oct. 24, 1916). INSECTICIDE-DISTRIBUTER. William M. Swearingen, Shepherdsville, Ky. - Powdered insecticide in a porous bag at the end of a pole is distributed over plants by tapping the pole with a stick.

1,241,437 (Sept. 25, 1917; appl. June 2, 1917). DEVICE FOR SPRAYING POWDER AND LIQUID. John D. Pian, Detroit, Mich. - Powdered or liquid insecticide in a metal cylinder is sprayed upon vegetation by air compressed by a hand pump.

1,253,672 (Jan. 15, 1918; appl. May 29, 1916). DUSTING AND SPRAYING APPARATUS. Frederick J. Decker, Rochester, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - This machine distributes fine sulphur or other powdered insecticide upon trees or plants.

1,272,283 (July 9, 1918; appl. Feb. 7, 1918). INSECT-DESTROYER. Jeremiah M. Madden, New York, N.Y. - Powdered insecticide is ejected from this cylindrical straw board container by air pressure. This device is for use in the household and also in greenhouses and gardens.

1,276,653 (Aug. 20, 1918; appl. Oct. 13, 1917). SPRAYING IMPLEMENT. Henry E. Herbert and James B. Hogeboom, Martin, Mich. - This device may be attached to an ordinary glass fruit jar and is intended to discharge very fine powder such as arsenate of lead, Paris green, etc. with a strong whirling movement.



1,278,768 (Sept. 10, 1918; appl. Dec. 31, 1917). SPRAYER. Heddy S. Shoulders, Springfield, Tenn. - This device is supported by a strap over the shoulder of the operator. A fan rotated by hand blows lime or powdered insecticide over a row of plants.

1,280,110 (Sept. 24, 1918; appl. Feb. 18, 1918). DUST-GUN. Robert R. Slate, South Boston, and Denison D. Staples, Richmond, Va. - This portable device contains a fan which is rotated to blow powdered insecticide upon plants.

1,282,697 (Oct. 22, 1918; appl. Sept. 12, 1918). POWDER-DUSTING MACHINE. Elmer Johnson, Washington, D.C. - In this machine exhaust gases from the engine are piped to the fan discharge pipe, thus keeping the discharge line dry and preventing caking of the powdered insecticide.

1,300,654 (Apr. 15, 1919; appl. Jan. 30, 1919). DRY-SPRAYING MACHINE. William H. Rose, Jersey City, N.J. - One of the objects of this invention is to provide a spray gun or blower adapted to receive a sealed package of the spray material and to perforate the package and discharge the contents after the package has been placed in the device.

1,302,095 (Apr. 29, 1919; appl. Dec. 19, 1918). INSECT-DESTROYER. Daniel D. Smith, Valdosta, Ga. - Boll weevils in fallen squares are killed by passing heated rollers over them. This machine also brushes the plants with a suitable insect powder or insecticide fluid in advance of the rollers for driving insects out of the plants to the ground.

1,303,851 (May 20, 1919; appl. Sept. 11, 1918). POULTRY-DISINFECTOR. George Carlson, New York, N.Y. - Insecticide powder or disinfectant is blown upon a hen by this device when the hen steps upon a platform.

1,310,815 (July 22, 1919; appl. Aug. 1, 1918). DUSTING-MACHINE. Bent L. Weaver, Harrisburg, Pa. - Sulphur, lead arsenate, Paris green, hydrated lime, etc., in a hopper is distributed upon vegetation by means of a powder blower.

1,312,969 (Aug. 12, 1919; appl. Oct. 21, 1918). INSECTICIDE-DISTRIBUTER FOR CULTIVATORS. Mac L. Fox, Columbiaville, Mich. - This machine sprays water upon plants and then sprinkles a powdered insecticide more or less soluble in water upon them.

1,316,514 (Sept. 16, 1919; appl. Mar. 26, 1918). INSECTICIDE-SPRAYER. Henry F. T. Sieverkropp, Hood River, Ore. - Powdered insecticide in a hopper is distributed through a nozzle upon vegetation by means of a blower fan.



1,330,763 (Feb. 10, 1920; appl. May 14, 1919). POWDER-GUN. James H. Lemons, Cedar Hill, Tenn. - J. S. Adams, Cedar Hill, Tenn. - This device for distributing powdered insecticide upon plants is carried by the operator. A fan connected to a crank blows the material out of the gun.

1,339,556 (May 11, 1920; appl. July 28, 1919). POISON-DISTRIBUTER. John Een, Amherst, Wis. - This container for powdered insecticides, such as Paris green, is made in the form of a cylinder with a perforated bottom. The insecticide is distributed upon plants by shaking this container up and down by hand.

1,354,215 (Sept. 28, 1920; appl. Jan. 28, 1920). COTTON-PEST POISONER. Joseph M. Saladiner, Bryan, Tex. - This machine blows powdered insecticide upon a row of cotton plants as it is drawn along. A hood in the rear of the machine confines the air blast and aids in distributing the powder.

1,360,642 (Nov. 30, 1920; appl. Dec. 15, 1919). POWDER-SPRAYER. Samuel D. Irwin, Floydada, Tex. - A bellows for blowing insect powder from a receptacle upon animals or plants is described.

1,361,293 (Dec. 7, 1920; appl. Aug. 25, 1919). INSECT-EXTERMINATOR. George M. Talbert and Harry Davis, Los Angeles, Calif. - This apparatus is carried on the back of the operator. An air blast from a bellows blows sulphur or other insecticide upon vegetation.

1,368,477 (Feb. 15, 1921; appl. Sept. 28, 1918). POWDER-DISTRIBUTER. Henry E. Brandt, Stillwater, Minn. - This powder distributor is intended to be operated by hand and is particularly designed for use upon potato vines. A rotating fan blows the powder from the device.

1,368,649 (Feb. 15, 1921; appl. July 9, 1918). DISINFECTANT-DUST-SPRAYING MACHINE. Olof Olson and Andrew Olson, Kingsburg, Calif. - This machine is designed for blowing dust, disinfectants, and insecticides (preferably sulfur) upon plants, vines, trees and the like. Movement of the vehicle upon which the apparatus is mounted actuates the blower fan.

1,369,215 (Feb. 22, 1921; appl. Jan. 27, 1919). INSECT-POWDER GUN. Edward S. Baston, Georgetown, Ky. - A vibrating tongue in this hand-operated bellows keeps the powder agitated.

1,371,412 (Mar. 15, 1921; appl. Nov. 20, 1916). PORTABLE SPRAYING - MACHINE. John S. Davis, Seattle, Wash. - California Sprayer Co., Los Angeles, Calif. - This spraying machine may be operated while being carried upon one's back to spray a desired pulverized chemical matter, as powdered sulphur or powdered lime, upon fruit trees, shrubs, and plants. The air blast is generated by a bellows.



1,373,317 (Mar. 29, 1921; appl. Jan. 29, 1920). DUSTING-MACHINE.  
Daniel G. Edwards, Hopkinsville, Ky. - This machine is designed to be carried by the operator and to blow powdered insecticide upon plants by means of a manual operated blast fan.

1,373,318 (Mar. 29, 1921; appl. Feb. 11, 1920). POWDER-DISTRIBUTER.  
Daniel G. Edwards, Hopkinsville, Ky. - This device contains a blower driven by a hand crank and is arranged to deliver its blast rearwardly with respect to the operator. A suitable mounted mirror is provided to enable the operator to observe the amount of insecticide dust being applied to the plants.

1,382,017 (June 21, 1921; appl. May 1, 1920). COTTON-PEST-DESTROYING MACHINE. Joseph M. Saladiner, Bryan, Tex. - This machine sprays water on plants followed by an insecticidal dust which is blown on under a wing or hood. Petroleum or other liquid can be sprayed on weeds to kill them.

1,394,686 (Oct. 25, 1921; appl. Jan. 7, 1921). POWDER-BLOWER.  
Claude F. Redmon, Lillard K. Redmon, Claude G. Redmon, and John T. Redmon, Paris, Ky. - One-fifth to Wade H. Whitley, Paris, Ky. - This portable device blows powdered insecticide upon plants by means of a rotary blower.

1,396,319 (Nov. 8, 1921; appl. May 25, 1920). AIR-BLAST SPRAYER.  
Alvin B. Champlin, Tuckahoe, N.Y. - One-half to Robert McWilliam, New York, N.Y. - This device is carried by the operator and distributes powdered insecticide by means of an air blast created by a rotating fan.

1,400,162 (Dec. 13, 1921; appl. June 24, 1918). POWDER-BLOWER.  
Thomas C. Holmes, San Francisco, Calif. - Powdered insecticide in a can is blown out of a nozzle upon fruit trees, poultry houses, etc. by an air blast from a bellows.

1,406,233 (Feb. 14, 1922; appl. Nov. 11, 1920). POWDER GUN.  
Joseph L. Skeldon, Toledo, Ohio. - Joseph L. Skeldon Engineering Co., Toledo, Ohio. - This duster for powdered insecticides is intended to be suspended by straps from the shoulders of the operator. The material is ejected by a blast of air made by a rotary fan.

1,406,903 (Feb. 14, 1922; appl. Oct. 23, 1919). DRY-SPRAY GUN.  
William H. Rose, Jersey City, N.J. - A device for dusting Paris green and other finely powdered insecticides provides an arrangement in which the original package of material is placed in the device before being opened and is afterwards perforated so as to permit air to be blown therethrough and produce a spray.

1,406,904 (Feb. 14, 1922; appl. Oct. 21, 1921). DRY-SPRAY GUN.  
William H. Rose, Jersey City, N.J. - Improvements in U.S. Patent 1,406,903 for puncturing original packages of dry powdered insecticide and blowing the contents out, are described.



1,411,498 (Apr. 4, 1922; appl. Dec. 27, 1921). APPARATUS FOR SPREADING OR DISTRIBUTING POWDER INSECTICIDES UPON TREES, PLANTS, AND THE LIKE. Fred Howles, Manchester, England. - This apparatus distributes powdered insecticide upon trees and plants through several nozzles by means of an air blast created by a power-driven fan.

1,420,601 (June 20, 1922; appl. Feb. 13, 1922). PLANT-DUSTING MACHINE. Jacob H. Wright, Louisville, Ky. - This machine is designed to dust plants with insecticides or fungicides (such as sulphur, Bordeaux mixture, nicotine dust, etc.) and is provided with a mixing apparatus for the air stream with the dust so that the dust cloud thus formed is of uniform density throughout. The fan is driven by an engine.

1,422,253 (July 11, 1922; appl. Aug. 22, 1919). POWDER DISTRIBUTOR. Colin Brown, Rochester, N.Y. - This device is intended to be operated by hand for distributing powdered insecticides upon plants. The powder is ejected by means of compressed air from a pump.

1,423,125 (July 18, 1922; appl. Oct. 15, 1921). DUST GUN. Joseph F. Lemons, Adams, Tenn. - One-fourth to W. B. Winters, Adams, Tenn., - One-fourth to John Hancock, Springfield, Tenn. - This device is carried by the operator. A hand turned crank is connected with a rotary fan to produce an air blast for ejecting powdered insecticide upon vegetation.

1,427,743 (Aug. 29, 1922; appl. Aug. 23, 1921). DEVICE FOR DUSTING TREES WITH DRY SULPHUR. Charles A. Lang, Selma, Calif. - One-half to Newton D. Hursh, Oakland, Calif. - This device for dusting vines and trees with sulphur is especially intended for preventing mildew and destroying red spiders. In its operation the dry material is blown through a screen and then through any nozzle suitable for the purpose. The apparatus is mounted on a motor propelled vehicle.

1,435,706 (Nov. 14, 1922; appl. Nov. 14, 1921). DUSTING MACHINE. Lloyd Giles, Los Angeles, Calif. - Walnut Growers Spray Manufacturing Co., Los Angeles, Calif. - This apparatus which is carried on the back of the operator discharges insecticide powder upon plants and trees by means of an air blast from a bellows.

1,439,461 (Dec. 19, 1922; appl. Jan. 10, 1922). SPRAYER. Charles A. Wood, Rothsay, Minn. - The object of this invention is to provide a sprayer having means for atomizing the liquid to be sprayed whereby the plants to be treated may be suitably moistened to occasion the adhesion thereto of a powder subsequently or coincidentally cast thereupon.



1,439,980 (Dec. 26, 1922; appl. Apr. 20, 1922). POISON DISTRIBUTING ATTACHMENT FOR BOLL-WEEVIL EXTERMINATORS. Joseph M. Saladiner, Bryan, Tex. - Nozzles for distributing poison upon cotton boll weevils to be used in connection with the boll weevil exterminator described in Patent No. 1,354,215 of Sept. 28, 1920 are described.

1,444,648 (Feb. 6, 1923; appl. Sept. 1, 1920). DUSTING MACHINE. Leland Willis and Olin F. Woodworth, Grenloch, N.J. - Bateman and Co., Wilmington, Del. - This machine is especially designed for applying calcium arsenate to cotton plants. The rotor of the blower is operated by the rotation of the wheels of the vehicle.

1,450,223 (Apr. 3, 1923; appl. July 6, 1920). POWDER-DUSTING ATTACHMENT. Elbert B. Raley, Mart, Tex. - This device may be attached to a cultivator or like wheeled agricultural implement for applying by means of a rotary blower an insecticide, preferably in a powdered form, to plants such as the cotton plant for destroying boll weevils.

1,450,651 (Apr. 3, 1923; appl. Nov. 18, 1920). MACHINE FOR DISTRIBUTING POWDER OVER GROWING PLANTS. George F. Sproull, Montgomery, Ala. - This machine is designed for distributing by means of a blower fan insect powder over growing plants, particularly cotton plants.

1,458,102 (Apr. 24, 1923; appl. May 28, 1920). POWDER DUSTER. William W. Goode, Arlington, Ala. - Powdered insecticide is distributed from a hopper to plants by a fan. The device is carried on the shoulders of two operators.

1,458,341 (June 12, 1923; appl. Oct. 1, 1921). POWDER SPRAYER. Henry E. Herbert, Martin, Mich. - One-half to Jans M. Herbert, Martin, Mich. - This powder sprayer is designed so that the powder will not pack nor be discharged in unnecessarily large quantities.

1,458,424 (June 12, 1923; appl. Oct. 14, 1922). APPARATUS FOR DISTRIBUTING POWDER. Joseph F. Lemons, Adams, Tenn. - One-half to Coleman R. Lemons, Adams, Tenn. - This powder duster is designed to be carried by the operator. The powder is blown out of a nozzle by a rotating fan.

1,459,955 (June 26, 1923; appl. Feb. 28, 1923). POWDER SPRAYER. Elmer Johnson, Washington, D.C. - The People of the United States. - A powder sprayer designed for applying calcium arsenate from an airplane upon cotton is described.

1,462,773 (July 24, 1923; appl. Apr. 1, 1922). INSECT-POWDER BLOWER OF THE BELLOWS TYPE. Horace T. Spencer, Knoxville, Tenn. - This bellows ejects powdered insecticide with a whirling motion.

1,462,861 (July 24, 1923; appl. Apr. 24, 1920). PLANT-VERMIN-EXTERMINATING STRUCTURE. John M. Jordan, Summit, Ga. - T. M. Jordan, Summit, Ga. - This machine moistens cotton plants preliminary to dusting them with calcium arsenate. Gaseous fumes may also be applied to the plants which are covered with a hood. This fumigation treatment may be carried out in lieu of applying calcium arsenate or in conjunction therewith.

1,464,799 (Aug. 14, 1923; appl. Mar. 13, 1922). POWDER SPRAYER. Monroe Anderson, Pembroke, Ky. - This hand-operated powder duster for applying an insecticide upon tobacco, fruits, vegetables, and other vegetation, blows the powder through a nozzle with a rotating fan.

1,465,557 (Aug. 21, 1923; appl. July 13, 1922). INSECT EXTERMINATOR. Frank Oldham, Dallas, Tex. - This machine straddles a row of plants (especially cotton plants) and as it is drawn along it sprays them in front with water or other suitable liquid and dusts them in the rear with a suitable insecticide.

1,467,495 (Sept. 11, 1923; appl. July 8, 1922). INSECT CATCHER. Luther Patton, Birmingham, Ala. - This machine is designed to blow insects from plants into collecting troughs or to blow poison dust upon the plants.

1,473,785 (Nov. 13, 1923; appl. July 10, 1922). DUST SPRAYER. Warren W. Gore, Madison, Wis., - Fuller & Johnson Mfg. Co., Madison, Wis. - This machine is designed for dusting trees, bushes, shrubs, and plants by means of a rotary fan or blower.

1,473,786 (Nov. 13, 1923; appl. July 10, 1922). DUST SPRAYER. Warren W. Gore, Madison, Wis., - Fuller & Johnson Mfg. Co., Madison, Wis. - Improvements in patent No. 1,473,785 are described.

1,473,787 (Nov. 13, 1923; appl. July 10, 1922). DUST SPRAYER. Warren W. Gore, Madison, Wis. - Fuller & Johnson Mfg. Co., Madison, Wis. - Improvements in patent Nos. 1,473,785 and 1,473,786 are described.

1,474,668 (Nov. 20, 1923; appl. Sept. 15, 1920). INSECTICIDE DISTRIBUTOR. Walter H. Franks, Warthen, Ga. - This machine blows calcium arsenate over rows of cotton, the traction wheels furnishing power for driving the blower fan.

1,475,957 (Dec. 4, 1923; appl. Apr. 22, 1920). SPRAYING DEVICE. Joseph F. Lemons, Cedar Hill, Tenn. - William L. Pitt, Cleveland, Ohio. - A portable dusting apparatus distributes lead arsenate or other powder with a draft from a rotating fan.



1,476,655 (Dec. 4, 1923; appl. June 19, 1923). INSECT DESTROYER. Allan J. Strickland, Valdosta, Ga. - This device is designed to be operated by hand and is intended to distribute poison in dust form over plants by merely agitating the container vertically.

1,476,889 (Dec. 11, 1923; appl. Dec. 26, 1922). COTTON DUSTER. Orace P. Hobbs, Royston, and Pinkney A. Flanigan and Hiram T. Flanigan, Winder, Ga. - This apparatus may be attached to a plow or cultivator and is designed to dust cotton plants for the purpose of destroying boll weevils. The dust is blown through nozzles by a blower.

1,481,100 (Jan. 15, 1924; appl. Sept. 26, 1922). POISON DISTRIBUTOR. Rosser G. Killingsworth, McCormick, S.C. - This apparatus may be attached to a cultivator, and is designed for applying dry insecticides of any kind to cotton or tobacco plants during the cultivation thereof, or at any other time.

1,482,495 (Feb. 5, 1924; appl. Mar. 9, 1923). POWER DUSTING MACHINE. Robert B. Westhaver, Mahone Bay, Nova Scotia, Canada. - A powder dusting machine for blowing dust on trees, vines, field crops, and the like, is described.

1,482,709 (Feb. 5, 1924; appl. July 24, 1923). POWDER DUSTER. Daniel D. Smith, Valdosta, Ga. - A powder duster for use in depositing powder on cotton plants for killing boll weevils may be easily carried and operated by one hand of an operator.

1,495,098 (May 20, 1924; appl. May 11, 1923). BOLL-WEEVIL EXTERMINATOR. Al Nelson, Ripley, Tenn. - One-half to A. F. Ward, Memphis, Tenn. - This machine is equipped to apply poison powder to rows of cotton, to suck up and collect punctured squares, weevils and other debris, to spray water on the plants to make the subsequently blown powder adhere to the plants and to shake the plants to knock off the punctured squares.

1,496,821 (June 10, 1924; appl. June 12, 1923). POWDER DUSTER. Felix A. Moody, Mahana, Ga. - This powder duster is operated by hand, and is provided with means to insure against the wind blowing the powder from the plant when the powder is being discharged from the container.

1,500,857 (July 8, 1924; appl. Sept. 14, 1922). INSECT-DESTROYING MACHINE. Robert L. Woodruff, Winder, Ga. - This machine sprinkles water on cotton plants and then applies calcium arsenate powder. The wetted plants are covered by an apron as the machine moves forward and the poison powder is discharged within the apron.

1,501,136 (July 15, 1924; appl. Nov. 11, 1922). POWDER-BLOWER. Claude F. Redmon, Lillard K. Redmon, Claude G. Redmon, and John T. Redmon, Paris, Ky. - One-fifth to Wade H. Whitley, Paris, Ky. - This apparatus is designed for blowing insecticides upon plants by means of a motor-driven fan.

1,508,663 (Sept. 16, 1924; appl. June 23, 1922). SPRAYING MACHINE. John I. Lloyd, Kentville, Nova Scotia, Canada. - This machine is designed to dust a pulverized poisonous substance upon the leaves of plants and in orchards in order to destroy various insects. The blower fan is operated by a motor.

1,519,199 (Dec. 16, 1924; appl. Aug. 25, 1923). SPRAYER. Okie F. Green, Cynthiana, Ky. - This portable hand duster applies insecticides upon plants by means of a bellows.

1,521,831 (Jan. 6, 1925; appl. Dec. 5, 1922). POWDER SPRAYER. Sem Olvawitzs, Springfield, Tenn. - This device is designed to be carried by the operator. The blower fan is connected to a crank which is turned by hand.

1,525,900 (Feb. 10, 1925; appl. Feb. 4, 1924). SPRAYER. William H. Wyland, Sidney, Ohio. - This cylinder encircles a hill of plants and deposits a small quantity of insecticide powder upon them by the operation of a plunger.

1,527,491 (Feb. 24, 1925; appl. Apr. 25, 1924). POWDER-SPRAYING DEVICE. William H. Rose, Jersey City, N.J. - This device sprays insecticidal powder from the original carton by means of a hand pump.

1,530,578 (Mar. 24, 1925; appl. Mar. 4, 1922). DRY-POWDER DUSTER. Frank L. Sessions, Lakewood, Ohio. - This device, which is carried by the operator, is especially designed to dust several rows of cotton at a time with calcium arsenate. The blower fan is operated by turning a hand crank.

1,537,014 (May 5, 1925; appl. Apr. 17, 1923). CROP DUSTER. Edgar Knapp and Carl G. Allgrunn, Middleport, N.Y. - This device is carried upon the person by a suitable harness and the blower fan is operated by a hand crank.

1,538,221 (May 19, 1925; appl. Jan. 3, 1924). INSECT DESTROYER. Emil Smajstrla, Victoria, Tex. - This machine blows poison powder upward through cotton plants to destroy boll weevils. It is run by hand or by power derived from one of the traction wheels.

1,538,779 (May 19, 1925; appl. Oct. 26, 1921). DUSTING MACHINE. Carl G. Allgrunn and Edgar Knapp, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - This machine distributes powdered insecticide upon all sides of a plant through adjustable nozzles. The blower fan is motor driven and 4 rows of plants are dusted at one time.

1,540,197 (June 2, 1925; appl. Sept. 24, 1924). INSECTICIDE CONTAINER AND DISTRIBUTER. Albert P. Treadwell, Atlanta, Ga. - One-half to Josiah Flournoy, Columbus, Ga. - Powder is ejected from a nozzle by



forward movement of this telescoping cylindrical container. This device is an improvement over the one described in U.S. Patent No. 1,500,514 issued July 8, 1924 to A. L. Milligan.

1,540,198 (June 2, 1925; appl. Sept. 24, 1924). INSECTICIDE CONTAINER AND DISTRIBUTOR. Albert P. Treadwell, Atlanta, Ga. - One-half to Josiah Flournoy, Columbus, Ga. - This device is similar to the one described in U.S. Patent No. 1,540,197.

1,542,430 (June 16, 1925; appl. Oct. 3, 1924). POISON DUSTER. Albert B. Weaver, Chipley, Fla. - This glass jar has a screen over the mouth. Dust insecticides are distributed over plants by shaking this inverted device. Weights in the jar cause the screen to vibrate and prevent clogging.

1,543,916 (June 30, 1925; appl. Sept. 8, 1923). DUSTING APPARATUS. Lee B. Green, Lakewood, Ohio. - Globe Machine and Stamping Co., Cuyahoga, Ohio. - This horse drawn machine blows powdered insecticide upon plants through two nozzles. The mechanism is actuated by traction.

1,546,966 (July 21, 1925; appl. May 14, 1924). DUPLEX POWDER DUSTER FOR SADDLES. Henry E. Brandt, North St. Paul, Minn. - Dobbins Manufacturing Co., North St. Paul, Minn. - This device is mounted on the horn of a saddle carried on the back of a mule. Powdered insecticide is blown upon cotton, tobacco or potatoes by blower fans connected with a hand turned crank.

1,551,877 (Sept. 1, 1925; appl. Sept. 22, 1920). DRY-POWDER DUSTER AND METHOD OF FORMING DUST CLOUDS. Leslie G. Henning, Cleveland, Ohio. - One-third to Frank L. Sessions, Lakewood, Ohio, and one-third to Harland H. Newell, Lakewood, Ohio. - This device is carried by the operator by means of shoulder straps. Calcium arsenate dust is blown upon cotton plants by means of a propeller fan turned by hand.

1,555,740 (Sept. 29, 1925; appl. Aug. 1, 1924). COTTON-DUSTING MACHINE. Robert L. Woodruff, Winder, Ga. - Woodruff Cotton Duster Co., Inc., Winder, Ga. - This horse drawn machine blows poisonous powder upon plants by means of a traction operated fan.

1,555,106 (Oct. 13, 1925; appl. Mar. 15, 1924). PLANT DUSTER. John Z. Tow and Sam Olwovitch, Springfield, Tenn. - This hand-operated portable machine is designed for dusting tobacco, cotton, etc. When the handle crank is turned 45 to 60 times per minute the fan revolves 2700 times per minute.

1,558,362 (Oct. 20, 1925; appl. June 24, 1922). DUST-INSECTICIDE-APPLYING MACHINE. John C. Hull, Gasport, N.Y. - This motor driven dusting machine has adjustable means for varying and controlling the volume of air admitted to the fan blower.

1,558,439 (Oct. 20, 1925; appl. May 3, 1923; Renewed Mar. 19, 1925). POISON DISTRIBUTOR. William Schilpin, Seattle, Wash. - A blast of air from a foot operated bellows blows powdered insecticide through a flexible tube and a nozzle supported on a pole out upon trees.

1,559,750 (Nov. 3, 1925; appl. June 5, 1924). POULTRY-POWDERING MACHINE. Paul P. Hemm and Willie E. Bernstein, Davenport, N.D. - Anti-vermin powder is applied to a fowl by a blast of air from a propeller fan. The fowl is held in a housing with its head protruding outside through an opening in the wall.

1,561,039 (Nov. 10, 1925; appl. Nov. 11, 1924). SPRAYING APPARATUS. Edward Walker, Grantwood, N.J. - Powder or liquid in a container is drawn into an air stream and ejected from a nozzle in a highly atomized state. The air stream is created by an electric fan.

1,561,645 (Nov. 17, 1925; appl. June 2, 1924). SPRAYER. Mentor Howard, Weatherford, Tex. - This machine is designed to dust powdered insecticide upon cotton plants. Water containing a soluble insecticide may be sprayed simultaneously if desired.

1,569,017 (Jan. 12, 1926; appl. Oct. 29, 1923; Renewed Nov. 21, 1925). COTTON DUSTER. Orace P. Hobbs, Winder, Ga. - Warren De Sosa, Atlanta, Ga. - Calcium arsenate in a hopper is expelled laterally into an air current and delivered through a hose upon plants.

1,571,311 (Feb. 2, 1926; appl. Nov. 14, 1924). POWDER DISTRIBUTOR. Johannes A. Wittjen, Holly Springs, Miss. - Powdered insecticide is expelled from this cylinder with a handle when it is moved up and down by the operator.

1,572,684 (Feb. 9, 1926; appl. June 23, 1924). POWDER SPRAYER. John A. Rhodes, Atlanta, Ga. - One-half to Joseph S. Reynolds, Atlanta, Ga. - Powdered insecticide is blown out of a glass fruit jar by a blast of air from a hand operated bellows.

1,576,076 (Mar. 9, 1926; appl. June 12, 1922). AIR-BLAST SPRAYER OR DUSTER. Avery W. Walker, Gasport, N.Y. - This machine is particularly adapted for dusting orchards.

1,589,684 (June 22, 1926; appl. Sept. 14, 1925). SPRAYING MACHINE. Thomas R. Evans, Sr., Sumter, S.C. - This machine for blowing powdered insecticide upon cotton plants is operated by traction.



1,600,861 (Sept. 21, 1926; appl. Mar. 10, 1924). DUST GUN. Carl G. Allgrunn, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - Powdered insecticide is blown out of this portable device by a hand operated pump.

1,607,656 (Nov. 23, 1926; appl. Nov. 18, 1924). POWDER DISTRIBUTOR. Paul H. White, Indianapolis, Ind. - This machine creates a cloud of powdered insecticide in such a manner that it will settle over plants such as vegetables, cotton or corn and citrus and other fruit trees. The dust is distributed by a conduit swinging rapidly from side to side.

1,611,388 (Dec. 21, 1926; appl. Jan. 27, 1925). POISON DISTRIBUTOR. Thomas H. Stewart, Atlanta, Ga. - This cylinder containing calcium arsenate or Paris green has a wire gauze bottom. The powder is distributed over the plants by shaking the receptacle up and down.

1,614,269 (Jan. 11, 1927; appl. Mar. 31, 1926). COTTON DUSTER. Robert L. Woodruff, Winder, Ga. - This horse drawn fan blower mechanism applies calcium arsenate simultaneously to two rows of cotton.

1,619,316 (Mar. 1, 1927; appl. Dec. 10, 1923). AGRICULTURAL POWDER-DISTRIBUTING DEVICE. Ralph R. Root, Lakewood, Ohio. - Root Manufacturing Co., Cleveland, Ohio. - This mechanism for dusting cotton with a dry powder insecticide is mounted on a wheelbarrow.

1,624,321 (Apr. 12, 1927; appl. Sept. 1, 1925). INSECT DESTROYER. Albert L. Dunnagan, Waco, Tex. - David D. Deutsch, New York, N.Y. - Powdered insecticide is distributed over a wide area of vegetation infested with boll weevils and other insects by a motor driven blower fan which is mounted on a horse drawn vehicle.

1,624,996 (Apr. 19, 1927; appl. Aug. 13, 1923). POWDER-DUSTING MACHINE. Louis C. Stukenborg, Memphis, Tenn., and James H. Cooper, Lonoke, Ark. - This machine blows calcium arsenate on cotton plants with a motor driven blast fan.

1,629,872 (May 24, 1927; appl. Jan. 19, 1927). PLANT-DUSTING ATTACHMENT. George Huebner, Lagrange, Tex. - This cultivator attachment dusts powdered insecticide over plants by oscillating a bucket with holes in the bottom in which the insecticide is placed.

1,636,331 (July 19, 1927; appl. Apr. 22, 1922). APPARATUS FOR APPLICATION OF POWDERED DISINFECTANTS. William B. Smith, Hamilton Parish, Bermuda, - Herbert H. Whetzel, Ithaca, N.Y. - This device for feeding powdered insecticide into an air stream for dusting on vegetation is an improvement over the one described in U.S. Patent 1,188,127.

1,641,735 (Sept. 6, 1927; appl. Dec. 7, 1925). INSECTICIDE DUSTER. Lewis Cheeseman, Fellsmere, Fla. - This insecticide duster is carried upon the back of the operator and the bellows is worked by a hand lever.

1,646,224 (Oct. 18, 1927; appl. Feb. 18, 1927). COTTON-DUSTING MACHINE. William H. Thompson, Wichita Falls, Tex., - One-third to Fred S. Reaser and one-third to J. W. Duncan, Wichita Falls, Tex. - This machine distributes calcium arsenate, sulphur or other powder over cotton by means of a blower operated by the movement of the vehicle.

1,666,350 (Apr. 17, 1928; appl. Feb. 9, 1925). DUSTING APPARATUS. William L. Pitt, Cleveland, Ohio. - The air-impeller of this portable apparatus is operated by turning a crank handle.

1,674,048 (June 19, 1928; appl. May 17, 1924). DUSTING APPARATUS. Alfred A. Lang, Winter Haven, Fla. - Van Fleet Co., Florence Villa, Fla. - This machine throws a cloud of finely powdered sulphur or other insecticide or fungicide upon trees by means of a motor driven fan.

1,674,391 (June 19, 1928; appl. Aug. 24, 1926). DUSTING MACHINE. Albert L. Dunnagan, Dallas, Tex. - This machine discharges a cloud of poison powder upon cotton and other vegetation.

1,676,462 (July 10, 1928; appl. Feb. 25, 1925). POWDER-DISPENSING DEVICE. Ralph R. Root, Lakewood, Ohio, - Root Mfg. Co., Cleveland, Ohio. - A hand operated pump duster is described.

1,681,877 (Aug. 21, 1928; appl. June 14, 1927). DUSTER FOR FORD TRUCKS. Hoyle Pounds and Henry E. Patrick, Winter Garden, Fla. - This machine for blowing powdered insecticide upon plants may be mounted upon and operated by an automobile truck.

1,686,317 (Oct. 2, 1928; appl. Oct. 4, 1922). MULE BACK DUSTER. Edmund J. Feeny, Muncie, Ind. - This calcium arsenate hand blower is adapted to sit astride a mule and is operated by a man riding the mule.

1,687,545 (Oct. 16, 1928; appl. Oct. 11, 1926). SPRAYING DEVICE. William J. Clements, Chicago, Ill., - Clements Mfg. Co., Chicago, Ill. - This attachment for portable blowers (e.g. a household vacuum cleaner) is adapted to spray powders as well as liquids.

1,688,706 (Oct. 23, 1928; appl. July 20, 1926). DUST SPRAYER. Fred E. Greene, Berkeley, Calif., - A. B. Humphrey Co., Perkins, Calif. - This machine applies insecticide dust through two adjustable nozzles upwardly and downwardly upon plants in a row.



1,710,560 (Apr. 23, 1929; appl. June 22, 1925). POWDER DISTRIBUTOR. Paul H. White, Indianapolis, Ind. - This horse-drawn apparatus causes a dust cloud or fog of insecticide dust among growing plants or trees.

1,715,986 (June 4, 1929; appl. Sept. 26, 1925). DUST GUN. Edward C. Brown, Rochester, N.Y. - E. C. Brown Co., Rochester, N.Y. - A hand operated pump ejects powdered insecticide from a container.

1,716,970 (June 11, 1929; appl. Nov. 28, 1927). METHOD AND APPARATUS FOR DUSTING INSECTICIDE AND FUNGICIDE POWDERS UPON PLANTS. George S. Messinger, Tatamy, Pa. - In this apparatus the dust and air are uniformly mixed before the dust enters the blower chamber. The well mixed dust cloud is discharged upon the plants at such high velocity as to force the dust into every crevice of the plant foliage.

1,724,805 (Aug. 13, 1929; appl. Sept. 23, 1922). DEVICE FOR DISTRIBUTION OF POWDERY MATERIAL. Ralph R. Root, Cleveland, Ohio, - Root Mfg. Co., Cleveland, Ohio. - This device can be carried by the operator or on the back of an animal. It applies calcium arsenate, lead arsenate, lime, Paris green, and similar powders to cotton, potatoes, tobacco, etc. in a dust cloud through nozzles.

1,724,986 (Aug. 20, 1929; appl. Nov. 28, 1927). PORTABLE PLANT-DUSTING MACHINE. Jacob H. Wright, Oakland, Calif. - Western Sulphur Co., Inc., San Francisco, Calif. - This machine for applying powdered insecticides such as sulphur to growing plants has an oscillating discharge pipe which dusts two rows of plants simultaneously as the machine moves over the ground.

1,727,526 (Sept. 10, 1929; appl. Dec. 27, 1928). DUSTING MACHINE. William H. Thompson, Wichita Falls, Tex. - One-half to J. W. Duncan, Wichita Falls, Tex. - This horse drawn machine blows powdered chemical upon cotton or other plants to exterminate insects.

1,750,147 (Mar. 11, 1930; appl. June 6, 1927). PLANT-DUSTING MACHINE. Jacob H. Wright, Oakland, Calif. - Western Sulphur Co., Inc., San Francisco, Calif. - This power duster for applying insecticides to growing plants is mounted on a truck. It is an improvement over the one described in U.S. Patent 1,420,601 issued June 20, 1922 to J. H. Wright.

1,777,278 (Sept. 30, 1930; appl. June 25, 1928). DUST GUN. Harold O. Huntington, Seattle, Wash. - Henry O. Benedict, Seattle, Wash. - This device consists of a telescoping cardboard tube.

1,785,932 (Dec. 23, 1930; appl. July 20, 1929). DUSTING AND SPRAYING MACHINE. Arthur J. Brown, New York, N.Y., and Richard R. Ezdorf, Washington, D.C. - Dusting or spraying may be done with equal facility by this machine. Spraying is accomplished by introducing water under pressure into a discharging blast of powder-impregnated air adjacent the point of discharge.

1,785,933 (Dec. 23, 1930; appl. July 20, 1929). DUSTING MACHINE. Arthur J. Brown, New York, N.Y., and Richard R. Ezdorf, Washington, D.C. - This machine has positive feeding means whereby a uniform quantity of powder may at all times be discharged.

1,785,943 (Dec. 23, 1930; appl. Feb. 6, 1929). AGRICULTURAL DUSTING MACHINE. Richard R. Ezdorf, Washington, D.C. and Arthur J. Brown, New York, N.Y. - This machine broadcasts insecticides or fungicides over wide areas of vegetation.

1,785,944 (Dec. 23, 1930; appl. Feb. 6, 1929). BROADCAST DUSTER. Richard R. Ezdorf, Washington, D.C., and Arthur J. Brown, New York, N.Y. - Improvements in the machine of United States Patent 1,785,943 are described.

1,785,945 (Dec. 23, 1930; appl. Mar. 7, 1929). DUAL FAN-DUSTING MACHINE. Richard R. Ezdorf, Washington, D.C., and Arthur J. Brown, New York, N.Y. - This machine broadcasts insecticides or fungicides.

1,791,746 (Feb. 10, 1931; appl. Mar. 13, 1928). PLANT-TREATING MACHINE. John L. Paullus, Wabash, Ind. - This machine as it is drawn along a row of growing corn creates a cloud of dust from the soil which is deposited upon the corn to destroy the corn borer. If desired oil in a light film may be applied to parts of the plant.

1,792,804 (Feb. 17, 1931; appl. Mar. 26, 1928). DUSTER FOR PLANTS. Henry E. Brandt, St. Paul, Minn. - The Dobbins Mfg. Co., North St. Paul, Minn. - A hand operated pump blows dust insecticide through a flexible tube upon plants.

1,801,253 (Apr. 21, 1931; appl. Feb. 21, 1930). POWDER DISPENSER. Irving J. Amato, Pittsfield, Mass., - One-half to Edward F. Fahey, Pittsfield, Mass. - This device is operated by hand to sift a powder on plants, vines or trees for destroying insects.

1,808,654 (June 2, 1931; appl. Mar. 20, 1930). POISON OR POWDER DISTRIBUTOR. Walter G. Hagens, Near Yoakum, Tex. - This powder blower is operated by power derived from the ground wheels of the vehicle.



1,813,182 (July 7, 1931; appl. Jan. 10, 1931). POWDER BLOWER. Lawrence Manne, Rockford, Ill. - This is a bellows-operated powder blower.

1,829,298 (Oct. 27, 1931; appl. Oct. 14, 1929). PLANT SPRAYING APPARATUS. James E. Rimedio, Dover, Ohio. - Powder insecticide is sprayed from the blower automatically when the apparatus is being propelled and manually when it is at a standstill. The blower can be angularly adjusted to spray bushes, trees or plants.

1,832,963 (Nov. 24, 1931; appl. Apr. 9, 1924; divided and this appl. Feb. 1, 1923). POWDER DUSTING MACHINE. Leopold F. Burger, Riverside, Ill. - International Harvester Co., Chicago, Ill. - This machine is designed to straddle a row of cotton plants and to blow calcium arsenate upon them through nozzles.

1,840,805 (Jan. 12, 1932; appl. May 22, 1930). VEGETATION DUSTING MACHINE. Arnold R. Benner and August W. Benner, Louise, Tex. - This machine distributes powdered insecticide upon cotton and other plants.

1,841,646 (Jan. 19, 1932; appl. Aug. 28, 1929). POWDER SPRAYER. James Slocum, Detroit, Mich. - This hand operated pump duster is for applying fire extinguishing powders or insecticidal powders upon vegetation or in rooms.

1,849,615 (Mar. 15, 1932; appl. Feb. 27, 1931). VEGETABLE PLANT SPRAYER. Vincent Donegan, Pearre, and Michael L. Donegan, Hagerstown, Md. - One-half to Charles T. Callan, Little Orleans, Md. - Powdered insecticide is blown out of this device by means of a bellows.

1,851,406 (Mar. 29, 1932; appl. May 5, 1930). DUSTING MACHINE. Russell W. Ross and James F. Ross, Porterville, Calif. - This machine applies insecticidal dust to all parts of an orchard tree.

1,852,522 (Apr. 5, 1932; appl. Mar. 11, 1929). DUST DISTRIBUTING ATTACHMENT. Otto Hoelscher, Detroit, Mich. - This insect powder distributor is designed to be attached to a vacuum cleaner.

1,855,938 (Apr. 26, 1932; appl. Dec. 17, 1928). DUSTING APPARATUS. Charles D. Collins, New York, N.Y., - American Cyanamid Co., New York, N.Y. - Dusting material (e.g. calcium cyanide) in a glass fruit jar is blown out by a hand operated pump.

1,858,090 (May 10, 1932; appl. Mar. 29, 1930). FRUIT AND VEGETABLE DUSTING APPARATUS. John C. Hull, Gasport, N.Y. - "Friend" Mfg. Co., Gasport, N.Y. - This machine is adapted to blow pure sulphur dust (without the admixture of lime) upon vegetation of various kinds.

1,859,567 (May 24, 1932; appl. May 18, 1927). DUSTING MACHINE. Edgar Knapp and Carl G. Allgrunn, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - This machine is particularly suited for dusting upon vegetation dust insecticides admixed with adhesives of a gelatinous nature.

1,862,666 (June 14, 1932; appl. Mar. 30, 1931). POISON DISTRIBUTING MACHINE. James W. Duncan, Wichita Falls, Tex. - This machine blows powdered sulphur, calcium arsenate or other insecticide upon either a wide area or a few rows of vegetation.

1,864,505 (June 21, 1932; appl. Oct. 6, 1930). SPRAYING APPARATUS. Charles P. McCormick, Baltimore, Md. - Powdered insecticide is ejected from a container by a hand pump.

1,864,740 (June 28, 1932; appl. Dec. 2, 1927). BRUSH FEED FOR DUSTING MACHINES. Edgar Knapp and Carl Allgrunn, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - Improvements in the insecticide dusts of United States Patent 1,188,127 issued to J. H. Wright are described.

1,869,483 (Aug. 2, 1932; appl. Dec. 2, 1927). DUST GUN. Edgar Knapp and Carl G. Allgrunn, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - Powdered insecticide is ejected from this device by a hand pump.

1,873,993 (Aug. 30, 1932; appl. Oct. 15, 1929). DUSTING APPARATUS. John M. Brasington, Cheraw, S.C., - One-half to Charles S. McCall, Bennettsville, S.C. - This machine is designed for dusting calcium arsenate on cotton plants.

1,877,778 (Sept. 20, 1932; appl. Dec. 11, 1930). COMPRESSED AIR DUSTER. Dewitt Tappan, Rochester, N.Y. - E. C. Brown Co., Rochester, N.Y. - This compressed air duster is of the manually operable type.

1,880,781 (Oct. 4, 1932; appl. Mar. 1, 1932). ORCHARD DUSTER. Theodore L. Cairns, Lindsay, Calif. - This machine blows a very fine insecticide dust such as sulphur into the air and as the dust settles, it deposits itself on the foliage of the trees.

1,905,650 (Apr. 25, 1933; appl. Jan. 16, 1932). DISTRIBUTOR FOR INSECTICIDES AND THE LIKE. Thomas C. Raley, St. Louis, Mo., - Getz Exterminators, Inc., St. Louis, Mo. - Insect powder is ejected through a spout when this rubber-walled container is compressed.

1,911,927 (May 30, 1933; appl. Oct. 24, 1930). DUSTER. Ralph R. Root, Lakewood, Ohio. - Root Mfg. Co., Cleveland, Ohio. - This insecticide duster is carried by the operator and worked by turning a crank handle.



1,911,972 (May 30, 1933; appl. June 25, 1932). POWDER SPRAYING DEVICE. William H. Rose, Jersey City, N.J. - This duster is of the reciprocating piston type.

1,918,449 (July 18, 1933; appl. July 3, 1930). FEED MECHANISM. John M. Brasington, Cheraw, S.C., - One-half to Charles S. McCall, Bennettsville, S.C. - This feed mechanism is designed for use with a machine for applying powdered insecticide upon plants.

1,934,718 (Nov. 14, 1933; appl. May 19, 1928; renewed Feb. 8, 1933). DUSTING MACHINE. Edgar Knapp and Carl G. Allgrunn, Middleport, N.Y. - Niagara Sprayer Co., Middleport, N.Y. - This machine is designed for blowing powdered fungicide upon growing plants especially wheat and other small grain crops.

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